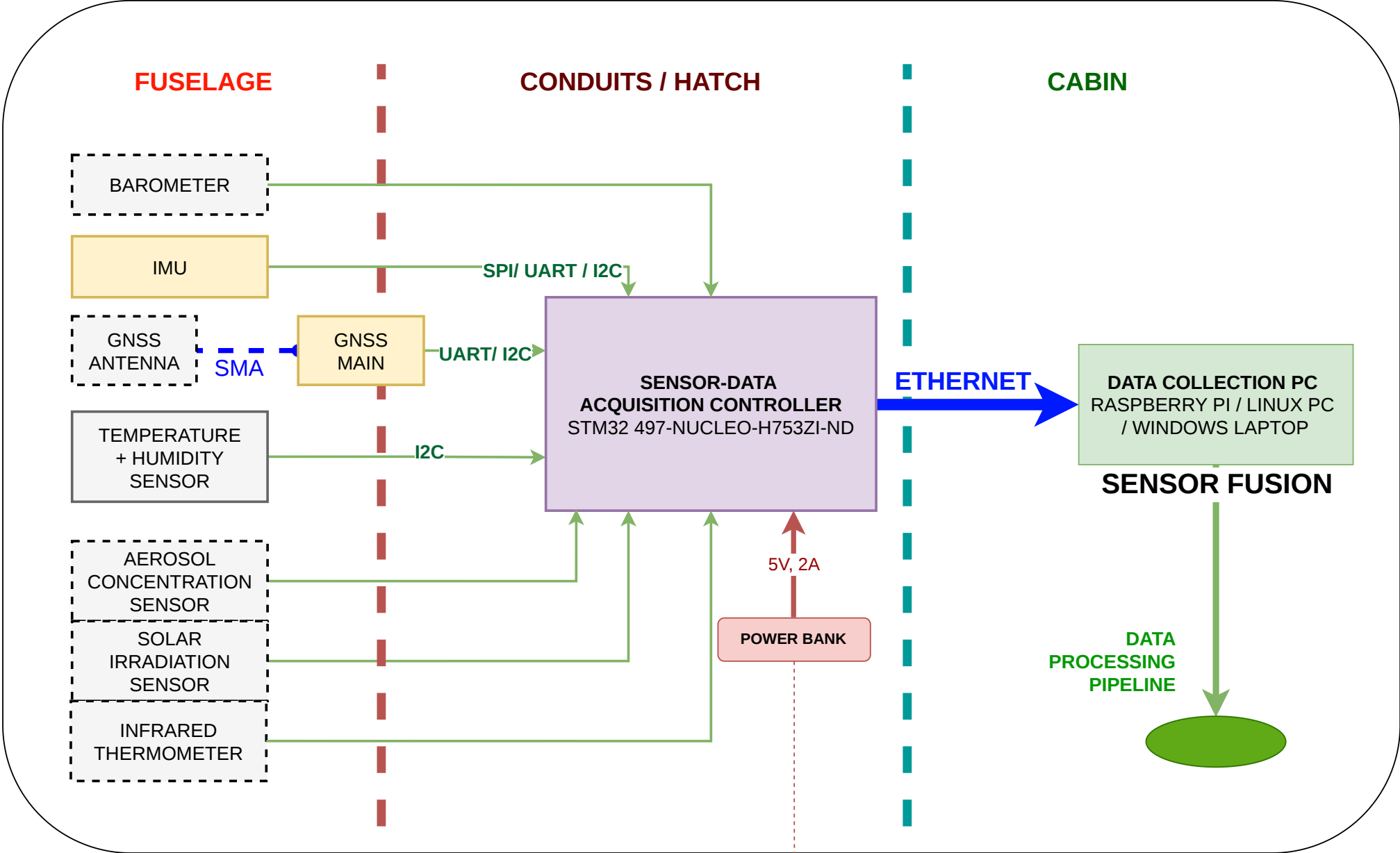# ENVIRONMENT SENSING AICRAFT CAMPAIGN - EMBEDDED SOFTWARE ARCHITECTURE
AIRMO x TANISH ISLAM

Purpose: To establish environment characteristics to test/calibrate AIRMO's SoTA GHG Emissions Instrument with SWR+MPL+VIS

FUSELAGE **CONDUITS / HATCH** **CABIN**

BAROMETER

IMU

SPI/ UART / I2C

GNSS ANTENNA — SMA — GNSS MAIN

UART/ I2C

SENSOR-DATA ACQUISITION CONTROLLER
STM32 497-NUCLEO-H753ZI-ND

TEMPERATURE + HUMIDITY SENSOR

I2C

ETHERNET →

DATA COLLECTION PC
RASPBERRY PI / LINUX PC / WINDOWS LAPTOP

SENSOR FUSION

AEROSOL CONCENTRATION SENSOR

SOLAR IRRADIATION SENSOR

INFRARED THERMOMETER

5V, 2A

POWER BANK

DATA PROCESSING PIPELINE

STM32 - Powered by the Power bank or an equivalent source (max. current <1A)

GNSS - 3.3V, <150 mA
IMU - 3.3V, <15mA
TH - 3.3V, <10mA

LEGEND:

Device / Device Part must be exposed to the air

Device can be shielded / indoor

device is mandatory

device is optional